REMARKS

This application has been reviewed in light of the Office Action dated March 27, 2003. Claims 1-30 remain pending in this application. Claims 1, 9, 16, and 21 are independent claims. Claims 1-3, 9-11, 16, 21, and 29 have been amended to even further clarify the claimed subject matter. Applicants note that the changes to at least Claims 2, 3, 10, 11, and 29 do not, in any way, narrow the scope of any of those claims. Favorable reconsideration is requested.

The Office Action requires that Fig. 8 be labeled "Prior Art".

Attached hereto is a Request For Approval of Drawing Change which proposes to amend Fig. 8 as required in the Office Action. It is believed that the objection to Fig. 8 has been remedied, and its withdrawal is therefore respectfully requested.

The specification has been amended as to matters of form, as required in the Office Action.

Claims 1, 9, 16, and 21 were objected to for the reason given in section 6 of the Office Action. Those claims have been amended herein as deemed necessary to overcome this objection, and thus withdrawal of the objection to those claims is respectfully requested.

Claims 1 and 9 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,383,047 (Minami et al.).

As amended, independent Claim 1 is directed to a method for manufacturing an electron-emitting device, comprising a step for forming a solid-state insulating polymer film including a carbon atomic bond between a pair of electrodes formed on a substrate, a step for heating the polymer film to change the polymer film into an electro-conductive film, and a step for providing a potential difference between the pair of electrodes to energize electrically the electro-conductive film.

A

Independent Claim 9 is directed to a method for manufacturing an electron-emitting device, comprising a step for forming a solid state polymer film including a carbon atomic bond between a pair of electrodes formed on a substrate, a step for heating the polymer film to change the polymer film into an electro-conductive film having an electrical resistance lower than that of the polymer film, and a step for providing a potential difference between the pair of electrodes to energize electrically the electro-conductive film.

Col. 9, lines 36-48 of Minami et al., relied on in the Office Action, refers to a mixed fluid 6 applied onto a substrate 1 and subjected to a heating and baking process, wherein the solvent is evaporated, and also forming an electroconductive organic film 4 including polyimide and graphite fine particles (Fig. 2C). A method such as lift-off is used for patterning. Using the ink-jet method allows patterning to be performed in the same manner as in a case wherein the mixed fluid 6 is applied on the substrate as shown in Fig. 2B. According to this process, an electroconductive organic film 4 having a specific sheet resistance is formed.

In Minami et al., the fluid is heated, but not a solid-state insulating polymer film, as recited in Claim 1. Also, the heating by Minami et al. is employed to evaporate a solvent in the fluid, not to "change the polymer film into an electro-conductive film having an electrical resistance lower than that of the polymer film", as recited in Claim 9. Indeed, nothing in Minami et al. would teach or suggest those respective features of Claims 1 and 9. Accordingly, Claims 1 and 9 are each deemed clearly patentable over Minami et al.

Claims 1-15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,674,100 (Ono et al.) in view of U.S. Patent No. 5,749,763 (Yoshioka et al.).

The recitations of Claims 1 and 9 were described above.

A

At col. 7, lines 8-50, Ono et al. refers to a method of manufacturing a surface conduction electron-emitting device. Col. 7, lines 27-33 refers to heating an organic metal thin film in an oxidizing atmosphere such as ambient air, and charging an electroconductive film comprising mainly metal oxides. An electroconductive film 4 is locally destroyed, deformed or transformed such that a portion of the film 4 undergoes a structural change. From col. 6, line 61 to col. 7, line 5, Ono et al. refers to reducing a power consumption rate of an electron-emitting device by chemically reducing the electroconductive film, wherein a preferable technique for chemically reducing the film include heating the film in a vacuum, keeping the film in a reducing atmosphere, and keeping the film in a reducing solution.

According to Ono et al., a step of reducing the resistance of an electro-conductive film by heating is conducted after electrical energization of the electro-conductive film. However, nothing in Ono et al. would teach or suggest a step of heating the polymer film to change the polymer film into the electro-conductive film, and providing a potential difference to electrically energize the electro-conductive film, as recited in Claim 1, and heating the polymer film to change the polymer film into an electro-conductive film having an electrical resistance lower than that of the polymer film, as recited in Claim 9.

Yoshioka et al. is cited in the Office Action as teaching "that a polymer (11) is formed between a pair of electrodes (1, 2) on a substrate (4), and then heated to allow for a lower driving voltage, which is well known in the art to indicate a higher conductivity and lower resistance."

According to Yoshioka et al., it is possible that a film 11 in Fig.12 may include a polymer. However, the film is already conductive because it contains conductive material fine particles 9. Nothing in Yoshioka et al. would teach or suggest heating a solid-

A

state insulating polymer film to change the polymer film into an electro-conductive film, as recited in Claim 1, and heating the polymer film to change it into an electro-conductive film having an electrical resistance lower than that of the polymer film, as recited in Claim 9.

For these reasons, even if Ono et al. and Yoshioka et al. were to be combined in the manner proposed by the Examiner (assuming such a combination would even be permissible), the resulting combination also would not teach or suggest the foregoing respective features of Claims 1 and 9. Accordingly, Claims 1 and 9 are each deemed clearly patentable over those references, whether considered separately or in combination.

Also in the Office Action, Claims 16, 21, 24-26, 29, and 30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoshioka et al., and Claims 17-20, 22, 23, 27, and 28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoshioka et al. in view of Ono et al.

Independent Claim 16 is directed to a method for manufacturing an electron-emitting device, comprising a step for forming a polymer film including a carbon atomic bond between a pair of electrodes formed on a substrate, a step for illuminating an electron beam onto at least a part of the polymer film, and a step for providing a potential difference between the pair of electrodes.

Independent Claim 21 is directed to a method for manufacturing an electron-emitting device, comprising a step for forming a polymer film including a carbon atomic bond between a pair of electrodes formed on a substrate, a step for illuminating light onto at least a part of the polymer film, and a step for providing a potential difference between the pair of electrodes.

The teachings of Yoshioka et al. were described above.

A

It is respectfully submitted that nothing in Yoshioka et al. would teach or suggest illuminating an electron beam onto at least a part of a polymer film, as recited in Claim 16, and illuminating light onto at least a part of the polymer film, as recited in Claim 21. Accordingly, Claims 16 and 21 are each deemed clearly patentable over Yoshioka et al.

A review of the other art of record has failed to reveal anything that, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as applied against the independent claims herein. Therefore, those claims are respectfully submitted to be patentable over the art of record.

The other rejected claims in this application depend from one or another of the independent claims discussed above, and, therefore, are submitted to be patentable for at least the same reasons as are those independent claims. Since each dependent claim is also deemed to define an additional aspect of the invention, individual reconsideration of the patentability of each claim on its own merits is respectfully requested.

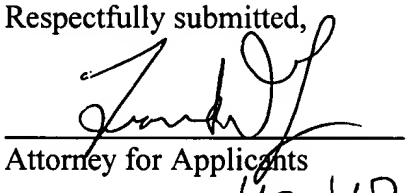
In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and the allowance of the present application.

No petition to extend the time for response to the Office Action is deemed necessary for the present Amendment. If, however, such a petition is required to make this Amendment timely filed, then this paper should be considered such a petition and the Commissioner is authorized to charge the requisite petition fee to Deposit Account 06-1205.

A

Applicants' undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,



Attorney for Applicants

Registration No. 42,476

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200

NY_MAIN 359634v1

A